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WOMAN'S SECTION.

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NEWS OF THE SCIENCES

Pasteur Institute's Experiments in Killing Rats.

INFESTED FIELDS CLEANED

Study of Yellow Fever and Other Work.

United States Consul-General J. K. Gowdy at Paris writes to the Department of Commerce and Labor, saying that the Pasteur Institute claims to have discovered a means of destroying the rats and mice which have committed such depredations on vines and growing crops that the losses arising therefrom have amounted to little less than a plague. "There appears to be no doubt," says Mr. Gowdy, "that the claims of the institute can be established by facts, as far as the destruction of rats and mice is concerned; it does not yet appear to be proved clearly and unmistakably that the means employed for destroying animals mentioned is not hurtful to other forms of animal life to be found in agricultural and vine districts. However, the results so far obtained have been so satisfactory to the French government that the minister of agriculture (M. Mougeot) has bestowed upon the manager of the Pasteur Institute the high and much-prized decoration of 'Commandeur du Merit Agricole,' while the 'Rosette d'Officer' has been bestowed upon the manager's assistant. On the 28th day of last January Drs. Roux and Chamberland, in company with a general inspector of agriculture (M. de Laparent) proceeded to the departments of the Charente, which district has suffered the most severely. The preparation of microbes by the Pasteur Institute in a sort of soup (boullion) is so well known in the United States in connection with the cure of rabies, diptheria, etc., that no further allusion will be made here in the preliminary work of the laboratory. Dr. Roux brought with him to the scene of operations a large quantity of this 'boullion' swarming with the rat microbes.

RATS AND MICE. DESTROYING

"The ground selected by Dr. Roux for his battle with the rats covered a space of 2,965 acres and extended over the communes of Aigre, Oradour and Mons. Here various kinds of cereals, vines and trees abound; and here, also, the sowing of various kinds of grain last autumn had been completely destroyed by these rodents. This meant also the destruction of fodder for cattle—such as lucern—hence buter and milk production was seriously affected. The ground throughout the district was literally perforated with holes, which seemed to be connected underground by little passages. Such was the condition of the scene of operation of Dr. Roux, which certainly seemed to offer a severe test for the efficacy of his discovery. Dr. Roux succeeded in interesting the farmers of the district in these experiments and very soon the celebrated scientist had organized a corps of assistants on the spot. These assistants, under the direction of Dr. Roux, dipped quantities of wheat, oats and small pieces of bread, about 0.207 inch square, into the boullion referred to and which consequently became immediately impregnated with the microbes which the boullion, or soup, contained. Then the poisoned wheat, etc., was placed in and about the holes where the rats and mice were known to be. The quantity of poisoned 'paste' distributed amounted in all to 4.2 mertic tons of bread and 2.3 metric tons of oats, while the quantity of boullion or soup used was 1,130 bottles. The total acres of these experiments, as above indicated, was 2,965 acres. The time employed by the farmers, who, under Dr. Roux's instructions, distributed that paste, represented about 1,200 half-days—from one to five o'clock in the afternoon.

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"To determine the effect of this poisoned paste on these destructive little animals Dr. Roux had the fields that had been microbe treated ploughed up in order to see the condition of the rodents, after they had eaten the paste and to fix approximately the numebr of rats and mice that had succumbed to the poison. The results obtained surpasses all expectations, especially surprised were the farmers. Rats and mice were dead in almost alarming quantities and became quite as much of a post when dead and putrefying as when they had been alive, but happily in another sense of the word. Dr. Roux estimates that he destroyed no less than 95 per cent of the rodents by these experiments. As many as fifty rats were sometimes found in one hole. Not satisfied with this ocular demonstration of the success if his paste, Dr. Roux proceeded to a field of an area of about wo and one-half acres and surrounded by vines. Here he had a number of rat holes counted, this number being fixed at 12,481, which were carefully closed. Two days later the holes were again visited and it was found that 1,304 had been reopened by the rats. The poisoned paste was again brought into requisition. Eight days afterwards the field was visited and the holes which had been opened counted, the process being again repeated two days later; the holes that had been opened by the rats were found to be thirty-seven.

"The minister of agriculture, on being satisfied with the results thus obtained by Dr. Roux and acting on the advice of the eminent scientist, proposes to introduce to the Chamber of Deputies a bill for the purpose of compelling farmers in rat-infested districts to co-operate in using the above described paste. In this way it is hoped that a field, for instance, which has been rid of rats will not be visited by rats from surrounding fields, which have not been treated with the poison. The cost of this paste, including its application, is estimated at about five francs (96) per hectare (2.471 acres)."

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In a paper read by Arthur Gulston, a British engineer, before the Society of Arts, some remarkable facts were stated regarding the work of vessels built for breaking ice in navigable channels. Mr. Gulston rates the Ermack, a Russian steamer intended chiefly for use in the Baltic Sea, the most powerful of these modern aids to winter navigation in cold countries. The Ermack is 335 feet long, and has remarkable breadth of beam, the extreme being 71 feet. The displacement of the ship is 8,000 tons, and her draught of water is 22 feet. In cold ice two feet thick, covered with from six to twelve inches of snow, the Ermack can make ten miles an hour, while in the Arctic Ocean the vessel has broken up and forced a passage through packs of ice twenty to thirty-five feet thick.

VESSELS FOR BREAKING ICE.

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Two physicians of the Hamburg Institute for Tropical Diseases—Messrs. Otto and Nellmann—have gone to South America for the purpose of studying yellow fever. They are supplied with considerable means furnished by shippers and merchants of Hamburg. In addition to scientific studies, they are to collect information with reference to the new preventive measures now used in South America against yellow fever, and to devise means to prevent the heavy damages which the German merchant marine has suffered in the several years of yellow fever epidemics. Commerce thus fights hand in hand with science against disease.

TO STUDY THE YELLOW FEVER.

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In a curious article on the "Life and Diseases of Metals," published in Harper's Magazine for April, Professor Heyn, of the Technical Polytechnic school, at Berlin-Charlottenburg, asserts that metals can be poisoned, much as animals often are and that metals so diseased may be brought back to normal condition again, in many cases, by proper treatment with remedies which may fairly be likened to the medicines used as antidotes for poisons in protecting human life. Professor Heyn brings forward much evidence, microscopic and physical, to show that the growth of vegetables can be closely paralleled in minerals when favorable conditions are created, that the effect upon the observer of the process of accretion is to suggest that the line of division between organic and inorganic substances is by no means so clear and certain as it is commonly supposed to be.

LIVING FORMS. METALS LIKE

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Marine architects and mechanical engineers are much interested in the decision of the directors of the Cunard Steamship Company to use turbine engines in the two immense ships which are being built by that corporation, in the expectation of restoring to Great Britain the position held for many years held by Germany, as possessor of the largest and fastest ocean steamers. The British government is giving much pecuniary aid in the building of these giant ships, and they must be adapted for naval use in time of need. Hence it is thought that the use of turbine engines in the huge vessels may mark the beginning of a revolution in the engines of warships intended for high speed or great power. The turbine engines are expected to save a good deal of space, and lessen the vibration caused by the machinery.

BRITISH ADOPT TURBINE ENGINE.

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An American-Canadian syndicate has been formed to work a coal field having a total area of about twenty-seven square miles, under the bed of the ocean on the eastern side of Cape Breton. The seams of coal are very thick, their total depth being estimated at nearly thirty-two feet, and it is believed that the deposits can be made to yield 240,000,000 tons, or about as much as as the soft coal mines of the United States produce in one year. The weird business of digging coal under the sea is not regarded by the engineers who will undertake the work as involving any special danger.

TO DIG COAL UNDER OCEAN.

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Dr. Herman Fleck returned to the Colorado School of Mines last week after a trip through the southern part of the state collecting specimens of rare ores for the St. Louis Exposition. In speaking of his journey, he said:

"Last December the Bureau of Mining, realizing that deposits of rare metals should be given a boost, and knowing that I have had a large experience in the work, asked that the school detail me to investigate the deposits of rare metals in Colorado. Dr. Alderson accompanied me as far as Telluride, where arrangements were made to ship two tons of vanadium ore from the Placerville and Bear Creek districts, which ore runs about 2½ per cent vanadium. We also discovered about two tons of the same metal in Denver, about which we had no knowledge at the time. All this ore is to be shipped to St. Louis in a few days. Further than this we secured the exhibit of Messrs. Adams and Vanatta, who have been getting uranium, vanadium, and radium from carnotite, which occurs so abundantly in Montrose and San Miguel counties. The Adams and Vanatta display will be exceptionally beautiful, although not bulky, consisting of the rarest specimens of carnotite, and also the worked-up products from good sized samples of 2 per cein ore and these include six tubes of radium and poloonium products of exceptional purity.

SPECIMENS OF RARE OIL.

"At Telluride Dr. Alderson left me and I continued to Rico, Dolores, and Durango. On the remainder of the trip I got six sacks of Montreal county ore and some high-grade gold specimens, one of which weighs 175 pounds, and runs $11.50 per pound in gold. The rare metals exhibit has been augmented by many contributions from points from outside the trip and the bulk and high grade of the specimens obtained will lend an agreeable commercial air to this part of the exhibit."

AN AWFUL JAPANESE CUSTOM.

It was a custom in old Japan to bury living retainers, servants, and even horses upright in a circle round the grave of a member of any imperial or noble family. The heads of these poor wretches were left exposed, and their cries of agony during their lingering death could be heard night and day. This awful custom was changed by a tender-hearted ruler in the second year of our Christian era, rough clay images being substituted for the living beings, but so late as A. D. 666 another Emperor had to legislate against the recurrence of such living burials.—St. James' Gazette.